Summary of last lecture

- Purpose of DBMS
- Disadvantages of file processing system
- Advantages of DBMS
- Disadvantages of DBMS

View of Data

- Major purpose of a database system is to provide users with an *abstract* view of the data.

Data Abstraction

- Data abstraction is the reduction of a particular body of data to a simplified representation of the whole.

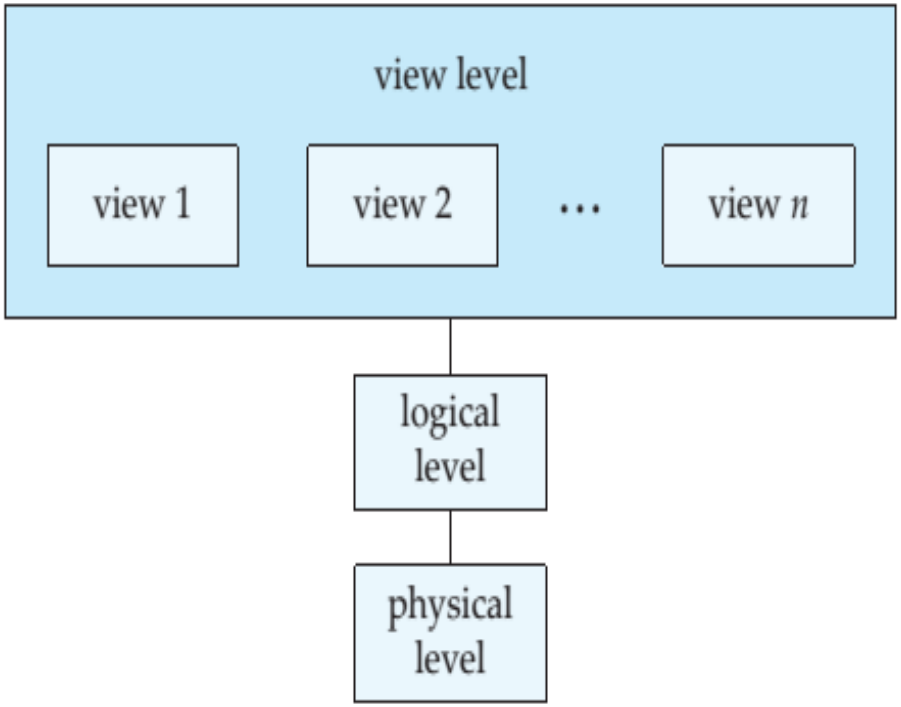

Fig: Three Level of data abstractions

View of Data Contd…

- **Data Abstraction**

➢ Physical level (Low Level)

- ✓How data are actually stored
- ✓Describe Complex low-level data structure
- ✓E.g. index, B-tree, hashing.

➢ Logical Level(Conceptual Level) (Middle Level)

- ✓What data are stored and what relationship exist among those data

➢ View Level (External Level) (High Level)

- ✓Describe only part of the entire database
- ✓E.g. tellers in a bank get a view of customer accounts, but not of payroll data.

View of Data Contd…

```
type instructor= record
                    ID : char(5);
                    name : char(20);
                    deptname : char(20);
                    salary : numeric(8,2);
                    end;
```

This code defines a new record type called *instructor* with four fields.

- At the physical level, an *instructor* described as a block of consecutive storage locations. And compiler hide this level of details from programmers.
- At the logical level, each such record inserted by user.
- At the view level, computer users see a set of application programs that hide details of the data types.

Instances and Schemas

- The data stored in the database at any given time is an **Instance** of the database
- The overall design of the database is called the **database schema.**

Name	Account No	Balance	Address
Bob	102	1000	Mumbai

Table shows an instance of a database with schema (Name, Account No, Balance, Address

Instances and Schemas

- **Database systems have schemas at each level of abstraction:**
  - The physical schema describes the database design at the physical level

    i.e. as a file of records of a particular type
  - The logical schema describes the database design at the logical level.

    Example: (Name, Account No, Balance, Address)
  - A database may also have several schema's at the view level, sometimes called subschemas, that describe different views of the database.

    For example, (Name, Account No) is a subschema of (Name, Account No, Balance, Address)

Database Languages

A language used to handle Database systems with the help of query is called as database language.

❖Parts –

- Data definition language (**DDL**)
- Data manipulation language (**DML**)

- ***Procedural DML*** *– user need to specify* ***what*** *data to retrieve and* ***how*** *to get it*

- ***Non-procedural DML*** *– user need to specify* ***what*** *data to retrieve* ***without*** *how to get it*